UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,923	03/30/2001	Matthew E. Frazer	PW 027 3217 P10862	8276

27496 7590 10/03/2005

PILLSBURY WINTHROP SHAW PITTMAN LLP
725 S. FIGUEROA STREET
SUITE 2800
LOS ANGELES, CA 90017

EXAMINER	
WANG, JIN CHENG	
ART UNIT	**PAPER NUMBER**
2672	

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/822,923	FRAZER ET AL.	
	Examiner	Art Unit	
	Jin-Cheng Wang	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29,34,39-41,46 and 53-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29,34,39-41,46 and 53-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's submission filed on 04/25/2005 has been entered. Claims 1-28, 30-33, 35-3842-45 and 47-50 have been canceled. Claims 29, 34, 39-41 and 46 have been amended. Claims 53-56 have been newly added. Claims 29, 34, 39-41, 46 and 53-56 are pending in the application.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection based on Bradski, G.R., "Computer Vision Face Tracking for Use in a Perceptual User Interface", Intel Technology Journal Q2, 1-15, (1998).

Specification

The disclosure is objected to because of the following informalities: for example, on line 6 of the claim 53, "pixes" should be "pixels". On line 22 of the claim 53, "HSV array or pixels" should be "HSV array of pixels". On line 24 of the claim 55, "HSV array or pixels" should be "HSV array of pixels". Appropriate correction is required.

Claim Objections

Claim 53 and 55 are objected to because of the following informalities: for example, on line 6 of the claim 53, "pixes" should be "pixels". On line 22 of the claim 53, "HSV array or

pixels" should be "HSV array of pixels". On line 24 of the claim 55, "HSV array or pixels" should be "HSV array of pixels". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 29, 34, 39-41, 46 and 53-56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

For example, the base claim 53 recites the iterative steps (a) determining whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges for the tracking system; (b) storing the initial test HSV array of pixels in a memory if the initial test HSV array of pixels has the acceptable hue, saturation, and value amounts and ranges; (c) decrementing the established number of test windows; repeating limitations (a), (b), and (c) for succeeding test windows until the established number of test windows is zero, wherein any test

HSV array of pixels that is stored is combined with existing HSV array of pixels in the memory to create a combined test HSV array of pixels. The claim language is not supported by the specification. For example, see page 17, 18-29 and Figs. 7A-7C of applicant's specification. Specifically, applicant recites using "initial test HSV array of pixels" in steps (a), (b) and (c), and later the claim 53 further set forth repeating (a), (b) and (c) using the initial test HSV array of pixels or any test HSV array of pixels. If the steps (a), (b) and (c) are repeated, only the initial test HSV array of pixels are used, as opposed to using any combined test HSV array of pixels. The specification as disclosed, however, using the combined HSV array of pixels in the memory obtained from all of the previous iterations in order to determine whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation and the initial test HSV array of pixels are *replaced*. Moreover, the pixel classification map is created until all steps are completed, not in the intermediate steps of the iterations. Therefore, the metes and bounds of the coverage of at least base claim 53 (as well as the base claim 55) cannot be ascertained.

To comply with the "written description" requirement of 35 U.S.C. 112, first paragraph, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filling date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). For purposes of written description, one shows "possession" by descriptive means such as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Such descriptive means cannot be found in the disclosure for the inventions of the base claim 31, 32 and 36.

Claims 29, 34, 39-41, 46 and 54 depend upon the claim 53 and are rejected due to their dependency on the claim 53. The claims 51-52 and 56 depend upon the base claim 55 and are rejected due to their dependency on the claim 55.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 29, 34, 39-41, 46 and 53-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For example, the base claim 53 recites the iterative steps (a) determining whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges for the tracking system; (b) storing the initial test HSV array of pixels in a memory if the initial test HSV array of pixels has the acceptable hue, saturation, and value amounts and ranges; (c) decrementing the established number of test windows; repeating limitations (a), (b), and (c) for succeeding test windows until the established number of test windows is zero, wherein any test HSV array of pixels that is stored is combined with existing HSV array of pixels in the memory to create a combined test HSV array of pixels. The claim language is not supported by the specification. For example, see page 17, 18-29 and Figs. 7A-7C of applicant's specification. Specifically, applicant recites using "initial test HSV array of pixels" in steps (a), (b) and (c), and later the claim 53 further set forth repeating (a), (b) and (c) using the initial test HSV array of pixels or any test HSV array of pixels. If the steps (a), (b) and (c) are repeated, only the initial

test HSV array of pixels are used, as opposed to using any combined test HSV array of pixels. The specification as disclosed, however, using the combined HSV array of pixels in the memory obtained from all of the previous iterations in order to determine whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation and the initial test HSV array of pixels are replaced. Moreover, the pixel classification map is created until all steps are completed, not in the intermediate steps of the iterations. Therefore, the metes and bounds of the coverage of at least base claim 53 (as well as the base claim 55) cannot be ascertained.

Claims 29, 34, 39-41, 46 and 54 depend upon the claim 53 and are rejected due to their dependency on the claim 53. The claims 51-52 and 56 depend upon the base claim 55 and are rejected due to their dependency on the claim 55.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 29, 34, 39-41, 46 and 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradski, G.R., "Computer Vision Face Tracking for Use in a Perceptual User Interface", Intel Technology Journal Q2, 1-15, (1998).

3. Re Claim 53:

(a) Bradski teaches a method to calibrate a tracking system to determine if an image frame has an established number of test windows that meet hue, saturation, and value amounts or ranges, and then to track an object within the image frame, comprising:

Converting the image frame from red-green-blue pixel information to a hue-saturation-value (HSV) array of pixels (*e.g., Bradski discloses the RGB to HSV conversion in page 3 and 13, as well as the HSV histograms are used to convert incoming video pixels to a corresponding probability of flesh image. Bradski discloses that the HSV brightness and saturation thresholds are employed with low and high thresholds are set off 10% of the maximum pixel value; see page 1-7*);

Thresholding the HSV array of pixels to create a thresholded HSV array of pixels (*e.g., Bradski discloses that the HSV brightness and saturation thresholds are employed with low and high thresholds are set off 10% of the maximum pixel value; see page 1-7*);

Setting the established number of test windows needed within the image frame for the calibration to be successful (*e.g., Bradski teaches choosing a search window size and the initial location of the search window including the initial test window and subsequently computes the mean location of the search window or computes the search window size as a function of the zero-th moment; see page 5 for the Coupled CAMSHIFT Algorithm of Bradski wherein a set number of iterations are performed for the calibration. Bradski discloses in Page 4 convergence occurs in six iterations for the actual sub-sampled flesh color probability distribution of an image of a face and a nearby hand*);

Establishing an initial test window in the thresholded HSV array of pixels to create an initial test HSV array of pixels (*e.g., Bradski teaches choosing a search window size and the*

initial location of the search window including the initial test window and subsequently computes the mean location of the search window or computes the search window size as a function of the zero-th moment; see page 5 for the Coupled CAMSHIFT Algorithm of Bradski);

(a) Determining whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges for the tracking system (*e.g., determining the HSV histograms or the flesh probability image with the thresholding values also determines the HSV array of pixels having acceptable hue, saturation, and value amounts and ranges for the tracking system to track the human face; see Page 3-7and 9-13*);

(b) Storing the initial test HSV array of pixels in a memory if the initial test HSV array of pixels has the acceptable hue, saturation, and value amounts and ranges (*e.g., Bradski discloses in page 3 storing flesh color histogram as a lookup table and thereby the color HSV array of pixels are stored in a memory*);

(c) decrementing the established number of test windows (*e.g., Bradski discloses repeating the iterative steps in the Mean Shift Algorithm, in Continuously Adaptive Mean Shift Algorithm and in the Coupled CAMSHIFT Algorithm of Pages 3-5 until convergence or a set number of iterations and thereby the number of iterations is decremented, at each iteration, a test window is constructed and thereby the number of the test windows is decremented*);

Repeating limitations (a), (b) and (c) for succeeding test windows until the established number of test windows is zero (*e.g., Bradski discloses repeating the iterative steps in the Mean Shift Algorithm, in Continuously Adaptive Mean Shift Algorithm and in the Coupled CAMSHIFT Algorithm of Pages 3-5 until convergence or a set number of iterations and thereby the number of iterations is decremented, at each iteration, a test window is constructed and thereby the*

number of the test windows is decremented), wherein any test HSV array of pixels that is stored is combined with existing HSV array of pixels in the memory to create a combined test HSV array of pixels (*e.g., Bradski discloses calculating the centroid of the 2D color probability distribution within its 2D window of calculation, re-centering the window, then calculating the area for the next window size. The calculation of the distribution is restricted to a smaller image region surrounding the current CAMSHIFT window; see Page 5. Thus, Bradski implicitly discloses combining the existing HSV histogram in the memory to find the center and the size of the search window and thus to find or create a combined test HSV array of pixels*); and

Determining whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation (*e.g., determining the HSV histograms or the flesh probability image with the thresholding values also determines the HSV array of pixels having acceptable hue, saturation, and value amounts and ranges for the tracking system to track the human face; see Page 3-7and 9-13*); and creating a pixel classification map for the image frame if the combined test HSV array of pixels has acceptable values and ranges for hue and saturation (*e.g., Bradski discloses calculating the centroid of the 2D color probability distribution within its 2D window of calculation, re-centering the window, then calculating the area for the next window size. The calculation of the distribution is restricted to a smaller image region surrounding the current CAMSHIFT window; see Page 5. Thus, Bradski implicitly discloses combining the existing HSV histogram in the memory to find the center and the size of the search window and thus to find or create a combined test HSV array of pixels. Finally, Bradski discloses a objects are tracked in real time and meanwhile a HSV image is formed after the convergence in which*

the algorithm has been modified to adapt dynamically to the probability distribution of the object it is tracking; see Page 3-7 and 9-13).

(b) Although Bradski is silent to the term"combined test HSV array of pixels" or "pixel classification map", Bradski discloses calculating the centroid of the 2D color probability distribution within its 2D window of calculation, re-centering the window, then calculating the area for the next window size. The calculation of the distribution is restricted to a smaller image region surrounding the current CAMSHIFT window; see Page 5. The calculation involves the mean shift locations and window size derived from the sequence of iterations in which the each test window at each iteration is involved in the calculation of the location and size of the new test window. Thus, Bradski implicitly discloses combining the existing HSV histograms in the memory to find the center and the size of the new search window and thus to find or create a combined test HSV array of pixels. As to the term "pixel classification map", Bradski discloses that objects are tracked in real time and meanwhile a HSV image is formed after the convergence in which the algorithm has been modified to adapt dynamically to the probability distribution of the object it is tracking; see Page 3-7 and 9-13. Therefore, the object is dynamically tracked using the dynamically adjusted test window wherein the color histogram lookup in the calculation regions is formed and thus the pixel classification map is established.

(d) It would have been obvious to one of ordinary skill in the art to have used "the combined test HSV array of pixels" because this combination would have allowed the size and location of the probability distribution changes in time as the tracked object moves in a video sequences. ", Moreover, Bradski suggests the claim limitation for the reasons set forth below.

Bradski discloses calculating the centroid of the 2D color probability distribution within its 2D window of calculation, re-centering the window, then calculating the area for the next window size. The calculation of the distribution is restricted to a smaller image region surrounding the current CAMSHIFT window; see Page 5. The calculation involves the mean shift locations and window size derived from the sequence of iterations in which the each test window at each iteration is involved in the calculation of the location and size of the new test window. Thus, Bradski implicitly discloses combining the existing HSV histograms in the memory to find the center and the size of the new search window and thus to find or create a combined test HSV array of pixels based on the existing set of HSV histograms.

(e) One having the ordinary skill in the art would have been motivated to do this because it would have accurately tracked an object as it moves based on the history of the tracking record wherein the moment of the probability distribution is used based on the combined test HSV histograms (See Page 4-5 of Bradski).

Claim 29, 34, 39-40, 54:

The claims further set forth the claim limitation of "determining a mean saturation of the initial test HSV array of pixels; determining if the mean saturation of the initial test HSV array of pixels falls within a first predetermined range; determining if a standard deviation of saturation of the initial test HSV array of pixels is less than a first predetermined amount if the mean saturation of initial test HSV array of pixels falls within the first predetermined range; determining a mean hue of the initial test HSV array of pixels if the standard deviation of the saturation of the initial test HSV array of pixels is less than the first predetermined amount and

determining a standard deviation of hue of the initial test HSV array of pixels if the mean hue of the initial HSV array of pixels falls within a second predetermined range".

However, Bradski discloses calculating the mean and standard deviation of the initial test HSV array of pixels. See Page 3-7 and 9-13. Bradski discloses HSV brightness and saturation thresholds are employed since hue is not well defined for very low or high brightness or low saturation and low and high thresholds are set off 10% of the maximum pixel value; Page 7. Bradski discloses adjusting the nature of the probability distribution by properly setting the HSV brightness and saturation thresholds.

Bradski is silent on the claim limitation of "determining a mean saturation of the initial test HSV array of pixels; determining if the mean saturation of the initial test HSV array of pixels falls within a first predetermined range; determining if a standard deviation of saturation of the initial test HSV array of pixels is less than a first predetermined amount if the mean saturation of initial test HSV array of pixels falls within the first predetermined range" and

"determining a mean hue of the initial test HSV array of pixels if the standard deviation of the saturation of the initial test HSV array of pixels is less than the first predetermined amount, and determining a standard deviation of hue of the initial test HSV array of pixels if the mean hue of the initial HSV array of pixels falls within a second predetermined range."

(c) However, Bradski teaches a standard mean shift method to track objects that have been converted into probability distributions to determine if the search was moved by a value less than a preset threshould value. Bradski teaches determining window sizing parameters for a set of search windows or boxes or windows of displaying images, each of the moving search windows having a same shape and a same pixel size as the calibration region in a form of

rectangle or a search window, wherein tracking data, to track the selected gestures is selected from one of the calculation region and the search windows having a highest tracking probability. For example, Bradski teaches that the tracking data such as window location parameters are determined/adjusted and a search window having the largest connected region of a probability distribution and the greatest probability density is selected and each of the adjacent test windows share at least one pixel with the calibration rectangle (e.g., Bradski Page 3-7 and 9-13).

Bradski further discloses a HSV probability distribution which involves the mean hue or the standard deviation of the hue and search for the area with the greatest probability density involves the motion-tracking processing suggesting the mean hue or the standard deviation of the hue being less than predetermined levels wherein the small mean saturation and a small standard deviation of a saturation or hue of the pixels in a Gaussian or Chi-Square probability density results in the optimum tracking accuracy (Bradski Pages 3-7 and 9-13). Therefore, Bradski teaches the claim limitation relating to the selection of a test HSV array of pixels by comparing the hue and saturation zero-th, 1^{st} and 2^{nd} moments with the predetermined parameter values.

(d) It would have been obvious to one of ordinary skill in the art to have used the optimum ranges/thresholds for the mean and standard deviation of the hue or saturation to obtain the optimum tracking accuracy or minimum tracking errors because Bradski teaches performing pattern recognition based on HSV histograms or probability distributions to determine a best match for the tracked object because such a selection of optimum ranges yields the best match tracking object based on the probability distribution or probability density.

(e) One having the ordinary skill in the art would have been motivated to do this because it would have provided a routine experimentation with the optimum ranges and criteria based on

some specific parameters of the probability distributions to obtain the greatest probability density for object selection to find the best match tracking object. See In re Peterson, 65 USPQ2d 1379 (CA FC 2003) and In re Geisler (CA FC) 43 USPQ2d 1362.

Re Claims 55, 41, 46, 51-52, and 56:

(a) The claims 55, 41, 46, 51-52, and 56 encompass the same scope of invention as that of claims 53, 2934, 39-40 and 54 except additional claimed limitation of "a machine-readable medium having recorded thereon instructions".

(b) Bradski has taught a method of calibrating a computer-vision system to track a selected object through a series of frames of data.

(c) Bradski however does not particularly disclose a recording medium having recorded thereon instructions.

(d) However, one of ordinary skill in the art would have recognized that computer readable medium (i.e., floppy, cd-rom, etc.) carrying computer-executable instructions for implementing a method, because it would facilitate the transporting and installing of the method on other systems, is generally well-known in the art. For example, a copy of the Microsoft Windows operating system can be found on a cd-rom from which Windows can be installed onto other systems, which is a lot easier than running a long cable or hand typing the software onto another system. The Office takes Official Notice of this teaching.

(e) Therefore, it would have been obvious to implement the Bradski's method and put Bradski's program on a computer readable medium, because it would facilitate the transporting, installing and implementing of Bradski's program on other systems.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (571) 272-7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jcw

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600